

CLAIMS

1) A cutting unit for cutting continuous cigarette rods fed in a given travelling direction (6), the cutting unit (1) comprising a supporting body (9); a cutting head (12) fitted to the supporting body (9) to rotate about a first axis (20), the cutting body (12) comprising a cutting drum (15), which rotates about a second axis (16) forming a given angle with said travelling direction (6), and has at least one radial blade (8); a counter-cutting device (4), which is engaged by at least one said continuous cigarette rod (3), and through which said first axis (20) extends; and locking means (24) for angularly locking the cutting head (12) in position on said supporting body (9); and being characterized in that said locking means (24) comprise automatic release means (48) for releasing the cutting head (12) with respect to the supporting body (9); actuating means (27, 31, 32) being interposed between the supporting body (9) and the cutting head (12) to rotate the cutting head (12) about said first axis (20) to vary said angle.

2) A cutting unit as claimed in Claim 1, and also comprising sensor means (23) for determining said angle and for negative-feedback-controlling said actuating means (27, 31, 32).

3) A cutting unit as claimed in Claim 2, wherein said sensor means (23) comprise a scale (33) located on said cutting head (12); and a fixed optical reader (35)

for determining said angle on said scale (33).

4) A cutting unit as claimed in Claim 3, wherein said cutting head (12) comprises a curved lateral surface (34) coaxial with said first axis (20); said curved
5 lateral surface (34) supporting said scale (33); and said optical reader (35) facing said scale and being positioned radially with respect to said first axis (20).

5) A cutting unit as claimed in any one of Claims 1 to 4, and also comprising guide means (21) interposed
10 between the cutting head (12) and the supporting body (9) to guide the cutting head (12) on the supporting body (9) during rotation about said first axis (20).

6) A cutting unit as claimed in Claim 5, wherein said guide means (21) comprise a rib (25), which projects
15 upwards from said supporting body (9) and extends, on the supporting body (9), along an arc coaxial with said first axis (20); and a slot (26), which is formed on said cutting head (12), extends along an arc coaxial with said first axis (20) and of the same radius as the arc of said
20 rib (25), and is engaged in sliding manner by said rib (25).

7) A cutting unit as claimed in any one of Claims 1 to 6, wherein said actuating means (27, 31, 32) comprise a motor reducer (27) fitted to said supporting body (9);
25 a pinion (31) parallel to said first axis (20) and activated by said motor reducer (27); and a ring gear (32) coaxial with said first axis (20), fitted to said cutting head (12), and engaged by said pinion (31).

8) A cutting unit as claimed in any one of Claims 1 to 7, wherein said supporting body (9) and said cutting head (12) comprise a first and, respectively, a second plate (11, 14) contacting each other; said locking means
5 (24) comprising at least one pin (36) extending in axially sliding manner through said first plate (11) and fitted in transversely sliding and axially fixed manner to said second plate (14); elastic means (46) being interposed between said pin (36) and said first plate
10 (11) to compress and lock said first and second plate (11, 14) against each other.

9) A cutting unit as claimed in Claim 8, wherein said pin (36) has an end portion comprising an end plate (38); said second plate (14) having a curved, T-section
15 groove (39) coaxial with said first axis (20); and said end portion engaging said groove (39) in transversely sliding manner.

10) A cutting unit as claimed in Claim 8 or 9, wherein said automatic release means (48) comprise push
20 means (51) carried by said supporting body (9) and acting on said pin (36) to move the pin (36) axially in opposition to said elastic means (46).

11) A cutting unit as claimed in Claim 10, wherein said push means (51) are cam means acting axially on said
25 pin (36).

12) A cutting unit as claimed in Claim 11, wherein said locking means (24) comprise two pairs of said pins (36); said automatic release means (48) comprising, for

each said pair of pins (36), a rod (50), which has a third axis (52) crosswise to the relative said pins (36), and is fitted with two cams (51), each of which cooperates with one end (47) of a respective said pin
5 (36), and an actuating device (53, 54, 56) for rotating said rod (50) about said third axis (52).

13) A cutting unit as claimed in Claim 12, wherein said actuating device (53, 54, 56) is common to said rods (50), and comprises a linear actuator (53); and an
10 articulated quadrilateral, in turn comprising two cranks (55), each fitted to a respective said rod (50); said linear actuator (53) having an output (54) connected to one of said cranks (55).